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EXAMINER	
LEBRON, JANNELLE M	

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2861	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

EV

Office Action Summary	Application No.	Applicant(s)
	10/828,736	HEILES ET AL.
	Examiner	**Art Unit**
	Jannelle M. Lebron	2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)[ ] Responsive to communication(s) filed on *30 August 2007*.

2a)[ ] This action is **FINAL**. 2b)[x] This action is non-final.

3)[ ] Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)[x] Claim(s) *1,2,6-28,30-36 and 40-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)[ ] Claim(s) _____ is/are allowed.

6)[x] Claim(s) *1,2,6-28,30-36 and 40-52* is/are rejected.

7)[ ] Claim(s) _____ is/are objected to.

8)[ ] Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)[ ] The specification is objected to by the Examiner.

10)[x] The drawing(s) filed on *21 April 2004* is/are: a)[x] accepted or b)[ ] objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)[ ] The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)[ ] Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)[ ] All b)[ ] Some * c)[ ] None of:

1.[ ] Certified copies of the priority documents have been received.

2.[ ] Certified copies of the priority documents have been received in Application No. _____.

3.[ ] Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) [ ] Notice of References Cited (PTO-892)

2) [ ] Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) [ ] Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) [ ] Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) [ ] Notice of Informal Patent Application

6) [ ] Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 20 is objected to because of the following informalities: the limitation "while the first printhead and the first printhead is scanned across the medium at a plurality of printing speeds" is unclear and should be rewritten. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 47-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Gast et al. (US Patent 6,076,915).

4.

5. Gast et al. discloses a method for calibrating one or more printheads (see abstract), the method comprising:

- Claim 47:

  printing a first reference image (solid lines 90 in fig. 5) using a first portion of image forming points of a first printhead (the reference pen);

printing a first diagnostic image (dashed lines 92 in fig. 5) using a second portion of image forming points of either the first printhead or a second printhead (the color pen), wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5), wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while said one of the first printhead and the second printhead is at the first horizontal position (when both pattern overlap, the printheads are at the same horizontal position; as seen in fig. 4);

detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and

determining a compensation value based upon the first optical density (col. 8, lines 33-36).

- Claim 48:

including:

printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position (in pattern 83 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);

printing a second diagnostic image with the second portion while said one of the first printhead and the second printhead is at a third horizontal position positively offset from the second horizontal position by a first offset distance (in pattern 83 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85);

detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

- Claim 49:

wherein the first reference image includes at least one mark having a width and wherein the first offset distance is no greater than the width (as seen in fig. 5).

- Claim 50:

wherein the first horizontal position and the second horizontal position have a common location (the solid lines have a specific spacing between them that is the same between patches).

- Claim 51:

printing a first reference image (solid lines 90 in fig. 5) using a first portion of image forming points of a first printhead (the reference pen);

printing a first diagnostic image (dashed lines 92 in fig. 5) using a second portion of image forming points of either the first printhead or a second printhead (the color pen), wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5), wherein the first reference image has a first color (reference pen is usually black) and wherein the first diagnostic image has a second color distinct from the first color (cyan in the case of figure 5);

detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and

determining a compensation value based upon the first optical density (col. 8, lines 33-36).

- Claim 52:

printing a first reference image (solid lines 90 in fig. 5) using a first portion of image forming points of a first printhead (the reference pen);

printing a first diagnostic image (dashed lines 92 in fig. 5) using a second portion of image forming points of either the first printhead or a second printhead (the color pen), wherein the first reference image and the first diagnostic image at least partially overlap;

detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and

determining a compensation value based upon the first optical density (col. 8, lines 33-36), wherein a plurality of horizontal printhead error compensation values are determined by printing the first reference image and the first diagnostic image each a plurality of times while the first printhead and said one of the first printhead and the second printhead are scanned across the medium at a plurality of different print speeds (column 6, lines 52-62; the dashed lines are printed at different timing and thus different printing speeds).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 2, 6-28, 30-36 and 40-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikori et al. (US Patent 6,832,825) in view of Gast et al. (US Patent 6,076,915).

8. Nishikori et al. discloses a method for calibrating one or more printheads [1A-1D in fig.1],

- Claim 1:

the method comprising:

printing a first reference image (1 in pattern [A] in fig. 7) using a first portion of image forming points ([a] in fig. 7) of a first printhead;

printing a first diagnostic image (1 in patch [B] or 5 in patch [F] in fig. 7) using a second portion of image forming points ([b] in fig. 7) of either the first printhead or a second printhead;

detecting a first optical density of the combined first reference image and the first diagnostic image (step 3 in fig. 6; col. 14, lines 4-8); and

determining a compensation value based upon the first optical density (step 4 in fig. 6).

Thus, Nishikori et al. discloses all the claimed limitations except for "wherein the first reference image and the first diagnostic image at least partially overlap."

Gast et al. discloses a method for calibrating one or more printheads (see abstract), the method comprising: printing a first reference image (solid lines in fig. 5; which can be applicable to horizontal pattern set 72 in fig. 4) using a first portion of image forming points of a first printhead (the reference pen); printing a first diagnostic image (dashed lines in fig. 5 which can be applicable to horizontal pattern set 72 in fig. 4) using a second portion of image forming points of a second printhead (the color pen), wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5); detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and determining a compensation value based upon the first optical density (col. 8, lines 33-36).

It can be seen that, even if they have different structures, the Nishikori and Gast invention have similar outcomes except that in Gast the patterns overlap and are printed by different printing heads. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Nishikori et al. invention to include means for partially overlapping the reference image with the diagnostic image as taught by Gast for the purpose of detecting an optical density in order to calibrate the printheads.

9. Nishikori et al. further discloses a method for calibrating one or more printheads:

- Claim 2:

wherein the first portion of image forming points comprises a first segment of a column of image forming points and wherein the second portion comprises a second segment of the column of image forming points on the first printhead (as seen in fig. 7).

- Claim 6:

including advancing the print media a distance such that the first reference image and the diagnostic image are in vertical alignment (as seen in fig. 7)

- Claim 7:

including adjusting a time at which the first portion dispenses ink based upon the compensation value (col.6, lines 42-47; if the density of the nozzles is controlled, the timing at which they eject ink is adjusted as well).

- Claim 8:

including forming images using the first portion and the second portion at different times based upon the compensation value (the density [and timing] is corrected for each nozzle block).

- Claim 18:

wherein the first portion and the second portion comprise identical portions of the first printhead, wherein the first portion is printed during overall movement as the first printhead in a forward direction and wherein the second portion (5 in fig. 7) is printed during overall movement the first printhead in a reverse direction (col. 10, lines 57-67).

- Claim 22:

wherein the first portion and the second portion have mutually exclusive image forming points (col. 10, lines 32-35; as seen in fig. 7).

- Claim 23:

wherein the first portion is designed to be spaced from the second portion by a predetermined distance in a first direction (the nozzles are spaces apart by a predetermined amount), wherein the first diagnostic image is printed on the print medium using the first portion while the first printhead is at a first horizontal position and wherein the second diagnostic image is printed upon the print medium using the second portion while the first printhead at a second horizontal position spaced from the first position by the predetermined distance in the first direction (as seen in fig. 7).

- Claim 24:

wherein the second portion is on the first printhead (as seen in fig. 7).

- Claim 25:

wherein the first reference image includes a first plurality of marks, wherein each of the first plurality of marks is printed upon the medium using the first portion of the first printhead and wherein the first diagnostic image includes a second plurality of marks, wherein each of the second plurality of marks is printed upon the medium using the second portion of the first printhead (as seen in fig, 7).

- Claim 26:

first portion and the second portion each include a plurality of image forming points (col. 10, lines 32-35; as seen in fig. 7).

- Claim 27:

wherein the first reference image is printed by dispensing a material (ink) from the first portion of image forming points.

- Claim 28:

wherein the first reference image is printed by applying heat with the first portion of image forming points (col. 8, lines 2-6).

- Claim 30:

including moving the first printhead along a single scan axis while printing both the first reference image and the first diagnostic image (as seen in fig.7).

- Claim 31:

wherein the first reference image and the first diagnostic image each include at least one mark having a major height in a first direction and a minor width and wherein the first reference image and the first diagnostic image are offset from one another perpendicular to the first direction (as seen in fig.7).

- Claim 44:

wherein the first reference image and the first diagnostic image are a same color (printed by the same printhead).

10. Regarding claims 9-17 and 19-21, Nishikori et al. discloses the claimed limitations as set forth above regarding claim 1but fails to explicitly disclose:

- Claim 9:

wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while the first printhead is at the first horizontal position.

- Claim 10:

including:

printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position;

printing a second diagnostic image with the second portion while the first printhead is at a third horizontal position positively offset from the second horizontal position by a first offset distance;

detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density.

- Claim 11:

wherein the first reference image includes at least one mark having a width and wherein the first offset distance is no greater than the width.

- Claim 12:

wherein the first horizontal position and the second horizontal position have a common location.

- Claim 13:

including:

printing a third reference image with the first portion while the first printhead is at a fourth horizontal position;

priming a third diagnostic image with the second portion while the first printhead and is at a fifth horizontal position positively offset from the fourth horizontal position by a second offset distance greater than the first offset distance; and

detecting a third optical density of a combination of the third reference image and the third diagnostic image, wherein the compensation value is determined based additionally upon the third optical density.

- Claim 14:

wherein the third reference image includes at least one mark, wherein each mark has a width and wherein the third offset distance is less than the width.

- Claim 15:

wherein the third horizontal position is offset from the second horizontal position in a first direction and wherein the fifth horizontal position is offset from the third horizontal position in the first direction.

- Claim 16:

including:

printing a fourth reference image with the first portion while the first printhead is at a sixth horizontal position;

printing a fourth diagnostic with the second portion while the first printhead is at a seventh horizontal position negatively offset from the sixth horizontal position by a third distance offset; and

detecting a fourth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density.

- Claim 17:

including:

printing a fifth reference image using the first portion while the first printhead is at an eighth horizontal position;

printing a fifth diagnostic image using the second portion while the first printhead is at a ninth horizontal position negatively offset from the eighth horizontal position by a fourth distance greater than the third distance; and

detecting a fifth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density.

- Claim 19:

wherein the first reference image has a first color and wherein the first diagnostic image has a second color distinct from the first color.

- Claim 20:

wherein a plurality of horizontal printhead error compensation values are determined by printing the first reference image and the first diagnostic image each a

plurality of times while the first printhead and the first printhead is scanned across the medium at a plurality of different print speeds.

- Claim 21:

wherein at least one image forming points is in both the first portion and the second portion.

Gast et al. discloses a method for calibrating one or more printheads (see abstract), the method comprising:

- Claim 9:

wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while the second printhead is at the first horizontal position (when the pattern overlap; both printheads are at the same position).

- Claim 10:

including:

printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position (in pattern 83 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);

printing a second diagnostic image with the second portion while the second printhead is at a third horizontal position positively offset from the second horizontal

position by a first offset distance (in pattern 83 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85);

detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

- Claim 11:

wherein the first reference image includes at least one mark having a width and wherein the first offset distance is no greater than the width (as seen in fig. 5).

- Claim 12:

wherein the first horizontal position and the second horizontal position have a common location (the solid lines have a specific spacing between them that is the same between patches).

- Claim 13:

including:

printing a third reference image with the first portion while the first printhead is at a fourth horizontal position (in pattern 84 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);

priming a third diagnostic image with the second portion while the second printhead and is at a fifth horizontal position positively offset from the fourth horizontal

position by a second offset distance greater than the first offset distance (in pattern 84 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85); and

detecting a third optical density of a combination of the third reference image and the third diagnostic image, wherein the compensation value is determined based additionally upon the third optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

- Claim 14:

wherein the third reference image includes at least one mark, wherein each mark has a width and wherein the third offset distance is less than the width (as seen in fig. 5).

- Claim 15:

wherein the third horizontal position is offset from the second horizontal position in a first direction and wherein the fifth horizontal position is offset from the third horizontal position in the first direction (as seen in fig. 5).

- Claim 16:

including:

printing a fourth reference image with the first portion while the first printhead is at a sixth horizontal position (in pattern 86 in fig. 5; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);

printing a fourth diagnostic with the second portion while the second printhead is at a seventh horizontal position negatively offset from the sixth horizontal position by a third distance offset (in pattern 86 in fig. 5; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85); and

detecting a fourth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

- Claim 17:

including:

printing a fifth reference image using the first portion while the first printhead is at an eighth horizontal position (in pattern 87 in fig. 4; solid lines are at a different position in the horizontal axis in comparison to the ones in pattern 85);

printing a fifth diagnostic image using the second portion while the first printhead is at a ninth horizontal position negatively offset from the eighth horizontal position by a fourth distance greater than the third distance (in pattern 87 in fig. 4; dashed lines are at a different position in the horizontal axis comparison to the ones in pattern 85); and

detecting a fifth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density (the optical density of each patch, horizontal and vertical, with each offset is determined).

- Claim 19:

wherein the first reference image has a first color (reference pen is usually black) and wherein the first diagnostic image has a second color distinct from the first color (cyan in the case of figure 5; column 6, lines 52-62).

- Claim 20:

wherein a plurality of horizontal printhead error compensation values are determined by printing the first reference image and the first diagnostic image each a plurality of times while the first printhead and the first printhead is scanned across the medium at a plurality of different print speeds (column 6, lines 52-62; the dashed lines are printed at different timing and thus different printing speeds).

- Claim 21:

wherein at least one image forming points is in both the first portion and the second portion (both printheads have nozzles).

It can be seen that, even if they have different structures, the Nishikori and Gast invention have similar outcomes except that in Gast the patterns overlap and are printed by different printing heads. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Nishikori et al. invention to include means for partially overlapping the reference image by different quantities and in different positions with the diagnostic image as taught by Gast for the purpose of

detecting an optical density in order to calibrate the printheads and obtain improved printing quality.

11. Nishikori et al. further discloses a printing system

- Claim 32:

comprising:

a printhead (1A-1D in fig. 1) having image forming points (nozzles 22 in fig. 3);

a sensor 30 in figs. 1 and 2); and

a controller (100 in fig. 5), wherein the controller is configured to generate first control signal and a second control signal , wherein the printhead is configured to print a reference image upon the print medium using a first portion of the image forming points and a diagnostic image upon the print medium using a second portion of the image forming points in response to the first control signal (col.8, lines 7-14), wherein the sensor is configured to determine an optical density of a combination of the reference image and the diagnostic image in response to the second control signal and the controller is configured to determine a compensation value based upon the optical density (col. 8, lines 15-24; steps 3 and 4 in fig. 6).

Thus, Nishikori et al. discloses all the claimed limitations except for "wherein the first reference image and the first diagnostic image at least partially overlap" and "wherein the optical density varies depending upon an extent to which the reference image and the diagnostic image overlap."

Gast et al. discloses a method for calibrating one or more printheads (see abstract), the method comprising: printing a first reference image (solid lines in fig. 5; which can be applicable to horizontal pattern set 72 in fig. 4) using a first portion of image forming points of a first printhead (the reference pen); printing a first diagnostic image (dashed lines in fig. 5 which can be applicable to horizontal pattern set 72 in fig. 4) using a second portion of image forming points of a second printhead (the color pen), wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5); detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and determining a compensation value based upon the first optical density (col. 8, lines 33-36).

It can be seen that, even if they have different structures, the Nishikori and Gast invention have similar outcomes except that in Gast the patterns overlap and are printed by different printing heads. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Nishikori et al. invention to include means for partially overlapping the reference image with the diagnostic image as taught by Gast for the purpose of detecting an optical density in order to calibrate the printheads.

- Claim 33:

wherein the controller is configured to generate a third control signal based upon the determined compensation value and wherein the carriage mechanism is configured to move the printhead in response to the third control signals (col. 8, lines 25-41).

- Claim 34:

wherein the controller is configured to generate third control signals and wherein the media handling system is configured to advance the print medium between printing of the reference image and the diagnostic image in response to the third control signals (col. 8, lines 25-4; the paper is fed between forward scans).

- Claim 35:

including moving the first printhead along a single scan axis while printing both the reference image and the diagnostic image (as seen in fig. 7).

- Claim 36:

wherein the reference image and the diagnostic image each include at least one mark having a major height in a first direction and a minor width and wherein the reference image and the diagnostic image are offset from one another perpendicular to the first direction (as seen in fig. 7).

- Claim 45:

wherein the first reference image and the first diagnostic image are a same color (printed by the same printhead)

12. The computer-readable media limitations of claim 40 are deemed to be inherent in view of the method steps and system disclosed above, since it would be necessary to execute the instructions configured by the computer-readable media in order for the apparatus to perform its intended functions.

13. The printing system limitations of claims 41, 42 and 46 are deemed to be inherent in view of the method steps disclosed above, since it would be necessary to perform the claimed steps in order for the apparatus to perform its intended functions.

14. Nishikori et al. further discloses a method for calibrating one or more printheads (1A-1D in fig. 1), the method comprising:

- Claim 43:

printing patches of reference images (1 in pattern [A] in fig. 7) and diagnostic images (1 in pattern [B] in fig. 7) across a range of relative offsets between the reference images and their corresponding diagnostic images (as seen in fig. 7), wherein each reference image is formed using a first portion of image forming points of a first printhead ([a] in fig. 1) and wherein each diagnostic image is formed using a second portion of image forming points of either the first printhead or a second printhead ([b] in fig. 7);

detecting optional densities of the patches (step 3 in fig. 6; col.14, lines 4-8); and

determining a compensation value for the second portion based upon the detected optical densities (step 4 in fig. 6; density is corrected for each nozzle block).

Thus, Nishikori et al. discloses all the claimed limitations except for "wherein the first reference image and the first diagnostic image at least partially overlap" and "wherein the optical density varies depending upon an extent to which the reference image and the diagnostic image overlap."

Gast et al. discloses a method for calibrating one or more printheads (see abstract), the method comprising: printing a first reference image (solid lines in fig. 5; which can be applicable to horizontal pattern set 72 in fig. 4) using a first portion of image forming points of a first printhead (the reference pen); printing a first diagnostic image (dashed lines in fig. 5 which can be applicable to horizontal pattern set 72 in fig. 4) using a second portion of image forming points of a second printhead (the color pen), wherein the first reference image and the first diagnostic image at least partially overlap (as seen in figs. 4 and 5); detecting a first optical density of the combined first reference image and the first diagnostic image (with sensor 58; col. 8, lines 31-33); and determining a compensation value based upon the first optical density (col. 8, lines 33-36).

It can be seen that, even if they have different structures, the Nishikori and Gast invention have similar outcomes except that in Gast the patterns overlap and are printed by different printing heads. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Nishikori et al. invention to include means for partially overlapping the reference image with the diagnostic image as taught by Gast for the purpose of detecting an optical density in order to calibrate the printheads.

Response to Arguments

Applicant's arguments with respect to claims 1-46 have been considered but are moot in view of the new ground(s) of rejection.

Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jannelle M. Lebron whose telephone number is (571) 272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jannelle M. Lebrón
AU 2861
11/13/2007

MATTHEW LUU
SUPERVISORY PATENT EXAMINER